

CLAIMS

1. A method of seismic surveying using a plurality of vibratory seismic sources, the method including the steps of:
- deploying at least one seismic sensor;
 - deploying a plurality of vibratory seismic sources at different source points;
 - simultaneously actuating said seismic sources;
 - acquiring seismic data attributable to said seismic sources using said seismic sensor;
 - redeploying said seismic sources so that at least one of them is positioned at a source point previously occupied by another of them;
 - simultaneously actuating said redeployed seismic sources;
 - acquiring seismic data attributable to said redeployed seismic sources using said seismic sensor;
 - decomposing said acquired seismic data into components attributable to each said seismic source; and
 - stacking together components attributable to seismic sources located at a common source point.
2. A method according to claim 1, wherein said simultaneously actuating steps each comprise simultaneously actuating each seismic source M times at each source point, where M is not less than the number of seismic sources.

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3. A method according to claim 1 or claim 2, further including the step of noise attenuating at least one of said components before said components are stacked together.
 4. A method according to any preceding claim, wherein the respective outputs of said seismic sources are recorded and used in processing said acquired seismic data.
 5. A method according to any preceding claim, wherein said seismic data is inverted using theoretical or optimal seismic source output.
 6. A method according to any preceding claim, wherein each said seismic source is capable of producing seismic energy within a respective frequency range and the frequency range of the seismic energy produced by one said seismic source is substantially outside the frequency range of seismic energy produced by another said seismic source when said seismic sources are simultaneously actuated.
 7. A method according to claim 6, wherein said seismic sources have sweep tapers and a sweep taper of one said seismic source overlaps a sweep taper of another said seismic source.
 8. A method according to claim 6 or claim 7, wherein the frequency range of one said seismic source has first order harmonics that do not overlap the frequency range of another said seismic source.
 9. A method according to any preceding claim, wherein said redeploying step comprising shifting said seismic sources one said source point in a common direction along a common path.